DOCUMENT RESUME

ED 390 191 EC 304 455

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TITLE The Relation of Self-Image to Academic Placement and Achievement in Hearing-Impaired Students.
PUB DATE [16 Jul 95]
NOTE 31p.; Paper presented at the International Congress on Education of the Deaf (18th, Tel Aviv, Israel, July 16-20, 1995).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Communication Skills; Delivery Systems; Elementary Secondary Education; *Hearing Impairments; *Language Skills; *Mainstreaming; Peer Relationship; *Self Concept; *Student Placement

ABSTRACT

The relationship between self-image and academic placement and achievement was studied with 1,072 Colorado students (ages 5-20) with hearing impairments. It was found that students who are hearing impaired with good English language skills have a more positive self-image than those whose language skills are below average. The relation between language and communication skills and self-image changed with intensity of special education services. Self-image was significantly poorer in children receiving special services 1-2 hours daily compared to children either in more fully mainstreamed or in more intensive delivery service options. Also, level of hearing loss, mode of communication, and reading skill were significantly related to level of self-image. Results suggest that self-image of students with hearing impairments is related to the ability to communicate with peers. It is concluded that some students with hearing impairments with good communication skills can receive an appropriate education in the mainstream; however, it may not be appropriate for children who have low English-language skills to be placed in the mainstream classroom. Rather, such children may need an educational setting where they can communicate with peers at their same level and receive training in language skills. (Contains 23 references.) (SW)

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The Relation of Self-Image to Academic Placement and Achievement in Hearing-Impaired Students

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Abstract

The purpose of this study was to examine the relationship between self-image and academic placement and achievement in hearing-impaired students. The Colorado Individual Performance Profile (CIPP) and the Meadow-Kendall Social-Emotional Assessment Inventory were the assessment tools used to measure the academic achievement and self-image irrespectively, of 1072 hearing-impaired students, ranging in ages from five to 20, throughout the state of Colorado. Results show that, overall, hearing-impaired students with good English language skills have a more positive self-image than those whose language skills are below average. The relation between language and communication skills changed with intensity of special education services. Also, delivery service placement, level of hearing loss, mode of communication, and reading skill were significantly related to level of self-image. Public Law 94-142 has been interpreted to mean full inclusion or integration of hearing-impaired students into the regular classroom as the best educational setting for the development of normal academic achievement and social-emotional well-being. However, this study suggests that this is only one of the ways to educate the deaf successfully.

The Relation of Self-Image to Academic Placement and Achievement in Hearing-Impaired Students

During the last few decades there has been extensive controversy over what educational strategies for hearing-impaired students are conducive to normal academic achievement and healthy social-emotional development.[1] The All Handicapped Children Act of 1975, Public Law 94-142, required each state to make a current assessment of all of its hearing-impaired students. Assessments were made in every area of development relevant to determining placement and programming to meet the child's educational needs in the form of an Individual Education Plan (IEP) (Federal Register, 1977). Section 121a.532 of the act states that "the child is assessed in all areas related to the suspected disability, including, where appropriate, health, vision, hearing, social and emotional status, general intelligence, academic performance, communicative status, and motor abilities."

At that time few assessment instruments, standardized specifically for the hearing-impaired, were available. This became the impetus for the creation of assessment tools that are both reliable and valid for determining the academic and social-emotional characteristics of the hearing-impaired population. The present study examines two such assessment tools, the Colorado Individual Performance Profile (CIPP) (Yoshinaga-Itano & Ruberry, 1992) and the Meadow-Kendall Social-Emotional Assessment Inventory (SEAI) (Meadow, 1983), as they pertain to the self-image and the academic development of hearing-impaired students. The Meadow-Kendall SEAI is a tool used to assess the social-emotional development of hearing-impaired adolescents, and the CIPP is primarily used to assess the academic achievement of school age hearing-impaired students. In this study, the two assessment tools were used jointly to find the criteria for placement of these students into particular educational settings.

Public Law 94-142 also encouraged placing hearing-impaired children into the mainstream with their non-handicapped peers. Several studies have examined the advantages and disadvantages of different educational settings (i.e., mainstream, residential) and their academic and social-emotional effects on the deaf child. However, none has focused specifically on the academic achievement and placement of hearing-impaired students as they relate to the specific variables that may lead to a high or low self-image. Some studies have shown that mainstreaming can benefit hearing-impaired students both academically and socially (e.g., Guralnick, 1976), while others suggest that while the academic achievement of hearing-impaired students may improve, social-emotional problems may result (e.g., Reich, Hambleton, & Houldin, 1977). Table 1 summarizes some of the major conclusions reported in the literature evaluating the effects of mainstreaming hearing-impaired students.

Insert Table 1 about here

Further review of the literature shows that academic and communicative success can occur in every type of communication system[2] (Brasel & Quigley, 1977; Geers & Moog, 1989; Meadow, 1968; Moeller & Johnson, 1989; Moog & Geers, 1985; Stuckles & Birch, 1966; Vernon & Koh, 1970; Yoshinaga-Itano & Pollack, 1986), and educational program, be it residential (Moog & Geers, 1985) or public (Davis et al., 1986; Kennedy, Northcott, McCauley & Williams, 1976). Clearly the primary issue is not the superiority of one method over another, but rather determining the combination of variables that best suits an individual child on that child's way towards healthy academic and social-emotional development (Yoshinaga-Itano & Ruberry, 1992).

The Colorado Individual Performance Profile (CIPP) was created in response to a request by the Colorado State legislature for an audit of the Colorado School for the Deaf and the Blind (CSDB) during the 1989-90 school year. It became clear during the audit that there was little uniformity of criteria for placement of particular deaf children at CSDB or in other statewide programs. The Colorado IPP was created with the intention of providing guidelines for placement of students into delivery services to suit each child's academic needs. Placement in a particular delivery service is based on a judgment about the number of hours per week or per day a child is likely to need of special instruction from a specialist in hearing to optimize academic achievement or social-emotional adjustment. For example, a child who has a three year delay in English language skills may be placed in Delivery Service 4, where the student receives direct service from a trained teacher of the hearing-impaired for one to two hours daily (Yoshinaga-Itano & Ruberry, 1992). Six different delivery service options are available in Colorado. In Delivery Service 1, the least intensive, students working at age appropriate levels receive indirect service through monitoring of their progress. In Direct Service 6, the most intensive, students who generally have a five or more year delay in grades 7-12 receive direct service in a self-contained classroom in which all academic subjects are taught by a trained teacher of the hearing-impaired. Table 2 shows the service options available to hearing-impaired students in Colorado.

Insert Table 2 about here

The present study uses data from hearing-impaired students in the state of Colorado; educational professionals administered the Colorado IPP and the Meadow-Kendall SEAI to them. The hypothesis was that the placement of a hearing-impaired child in the least restrictive educational environment where

hearing-impaired students learn with their hearing peers in the same classroom, would lead to optimal development of a healthy self-image and normal academic achievement. The Colorado Individual Performance Profile (CIPP) is used to describe the academic and social-emotional characteristics of each child and outline individual needs in an effort to identify the optimal service options for hearing-impaired students (Yoshinaga-Itano & Ruberry, 1992). This instruement focuses on the relationship between the self-image of deaf students and their English language skills, audiological acuity, reading skills, and the type of delivery service option into which students were placed. The purpose of the CIPP was to determine 1) if standard criteria were used to formulate recommendations for placement of students into the six different delivery service options and 2) whether or not these criteria were appropriate.

Method

Participants

The participants in this study included 1072 hearing-impaired students ranging in age from five to 20. No special criteria were used to select students for the study other than identification of hearing loss as an educationally significant handicapping condition and enrollment in Colorado public schools. Students from all hearing levels, with different communication systems, as well as other special characteristics were included.[3]

Design and Procedure

Professionals in the field of deafness from all over the state were asked to complete the Colorado Individual Performance Profile (CIPP) for each of their students. Service providers from local school districts, the University of Colorado at Boulder, the Colorado Department of Education, and the Colorado School for the Deaf and the Blind were involved in the creation and administration of the Colorado Individual Performance Profile.

A student profile chart was filled out for each student based on formal and informal assessments in the areas of audiological acuity, communication, English language skills, reading, mathematics, content areas of social studies and science, social-emotional development, social adjustment, life skills, cognition, and, for secondary students, pre-vocational and vocational skills (Yoshinaga-Itano & Ruberry, 1992). Students were assigned ratings ranging from one to six, one being the highest performance and six reflecting the lowest performance, based on the observations in the formal and informal assessment. Ratings were made on each student's chart. The ratings (1 to 6) are specified with criteria for each area.[4] Table 3 presents the format used for the Student Chart.

Insert Table 3 about here

The Meadow-Kendall Social-Emotional Assessment Inventory was used to assess the social-emotional status of hearing-impaired students (Meadow, 1983). This instrument requires teachers to judge the degree to which each of 59 sentences describe the student's behavior. Sentences are intended to measure characteristics of social adjustment, self-image, and emotional adjustment.[5]

When completing the Assessment Inventory, teachers are instructed to circle the response to each sentence that reflects the teacher's best judgment of the student. A four-point scale was used ranging from a response of very true to true to false to very false. The teacher circles **T** for very true, **t** for true, **f** for false, **F** for very false, or **?** for cannot rate or does not apply. Each letter circled by the teacher is translated into a numerical score ranging from 1 to 4. When **T** is the most positive score it is translated into a numerical value of 4, but on items for which **T** is the most negative response it translates into a score of 1. The **?** mark either means that the statement

does not apply to that particular student, or that the teacher does not have enough experience with the child to give a response, and hence is given no numerical value. The number of ? are tallied seperately and are not included in the calculation of the average. This type of scoring allows a mean to be generated for each dimension that the sentences of the inventory are intended to assess.

The completed CIPP's and Meadow-Kendall SEAI's were collected, scored and a repeated measures analysis of variance was carried out on the variable self-image to determine whether there was a significant difference in self-image as a function of several student characteristics taken from the profile chart. The student characteristics were 1) Audiological Status, 2) Communication Skills, 3) English Skills, 4) Reading Skills, 5) Mode of Communication, 6) Social Emotional Development: Emotional Adjustment, 7) Social Emotional Development: Social Adjustment, and 8) Social Emotional Development: Self-Image.

Results

The results will be presented in a series of numerical studies. Study I investigated the self-image of students educated in either oral or total communication methods in the classroom. Study II investigated the effects of English language skills and delivery service option on the one hand and self-image on the other. Study III investigated the relationship between audiological acuity and delivery service option and self-image scores. Study IV investigated the variability in self-image as a function of audiological acuity and delivery service option for two groups; group I included the students with high English language skills (English language skills 1, 2, and 3), and group II included students with low English language skills (English language skills 4, 5, and 6).

Study I:

Self-image scores from the Meadow-Kendall Social-Emotional Assessment Inventory for 168 hearing-impaired students educated with oral communication

methods were compared with the scores of 130 hearing-impaired children educated with total communication methods. The children ranged in age from 7 to 21 years and represented all degrees of educationally significant hearing loss

However, there was a significant difference in measured self-image between the oral and total communication groups (F (1, 292) = 5.53, $p < .05$). The mean of the oral group, 46.0% (s.d. 28.1), was lower than the mean of the total communication group, 53.9% (s.d. 25.1), although both groups had self-image scores within normal limits. An analysis of variance revealed no significant differences between the two groups in social adjustment ($F(1, 292)=2.85$, $p=.09$) or emotional adjustment ($F(1,292)=1.64$, $p=.20$). Thus, self-image scores of hearing-impaired students were significantly related to the mode of instructional communication, but social adjustment and emotional adjustment were not.

Insert Figure 1 about here

Study II:

An analysis of variance of 1072 students was conducted with two independent measures, English language skills (six levels) and delivery service (six levels) and one dependent variable, self-image. There was a significant main effect for English language skills ($F(5,705) = 3.3$, $p < .01$). In general, the higher the English language skills, the more positive the self-image scores. The main effect for delivery service was not significant ($F(5,705) = .391$, $p=.855$). However, there was a significant interaction between English language skills and delivery service indicating that the self-image scores differed according to both English language skills and delivery service and that the relationship between English language skills and self-image changed at each delivery service level.

Insert Figure 2 about here

Insert Figure 3 about here

The relationship between English language skills and self-image was non-significant at delivery services 6 ($F(5,134) = 1.9$, $p=.09$), 5 ($F(5,125)=2.09$, $p=.07$), and 4 ($F(5,102) = .37$, $p=.867$). However, English language skills and self-image were significantly related at delivery services 3 ($F(5,218) = 4.4$, $p < .01$), 2 ($F(5,83) = 5.4$, $p < .001$), and 1 ($F(5,56) = 6.68$, $p < .001$). Therefore, if a hearing-impaired child is placed in delivery service 1, 2, or 3, inclusion in the classroom with normal hearing peers, and their English language skills are significantly different than their normally hearing peers, their self-image scores are likely to be lower.

Study III:

A comparison of the effect of audiological acuity and delivery service option was made for only those hearing-impaired students with English language skills 1, 2, and 3, those students with, at most, a two year delay in English language skills. An analysis of variance was conducted with two independent measures, audiological acuity levels (1 through 6) and delivery service levels (1 through 6), and one dependent measure, self-image.

There were main effects for both audiological levels **($F(5, 449) = 3.2$, $p < .01$)** and delivery service **($F(5, 449) = 4.1$, $p < .001$)**, indicating that self-image scores of hearing-impaired students with high English language skills were related to the degree of hearing loss as well as to the "intensity" of service delivery. However, the means of the self-image scores for all audiological levels were within normal limits. This indicates again that the higher the English language skills, the more likely the student will have self-image scores within the normal range. Audiological acuity levels 1, 4, 5, and 6 had the highest self-image means, and level 2 had the lowest.

Insert Figure 4 about here

Insert Figure 5 about here

Study IV:

Because English language skills and service delivery were found to have a significantly related to self-image scores in Study 2, hearing-impaired students were divided into two groups differing in English language skills. Group I consisted of 484 hearing-impaired students who had English language skills within two years of their chronological age peers (English language skills 1, 2, and 3), and group II of 609 students who had more than a three year delay in their English language skills (English language skills 4, 5, and 6).

An analysis of variance for students in Group I investigating the relation of audiological level and delivery service with self-image scores revealed that the degree of hearing loss among students with high English language skills was related to their self-image scores ($F(5, 439) = 3.2$, $p < .01$). However, the delivery service option for high language students did not seem to affect their self-image scores significantly ($F(5,439) = 4.1$, $p < .01$).

All students with good English language skills had self-image scores above the 50th percentile, indicating strong self-image. Students with lesser degrees of hearing loss, audiological levels 1, 2, and 3, had significantly less positive self-image scores than those students with greater degrees of loss (severe to profound), audiological levels 4, 5, and 6.

Insert Figure 6 about here

Insert Figure 7 about here

An analysis of variance of group II, hearing-impaired students with more than a three year delay in their English language skills, investigating the independent variables of audiological acuity and delivery service and the dependent variable self-image scores revealed that the degree of hearing loss was related to their self-image scores ($F(5, 268) = 3.2$, $p < .01$), but delivery service was not ($F(5,268) = .51$, $p < .01$). Among students with poor English language skills, self-image scores were closer to normal limits for the more severely deaf students (audiological acuity levels 4, 5, and 6), and self-image scores were significantly lower among hard-of-hearing students (audiological acuity levels 1, 2, and 3).

Insert Figure 8 about here

Insert Figure 9 about here

Summary of Results:

1) Self-image of hearing-impaired children is significantly more positive among students with good English language skills than among students with poor English language skills.

2) The poorer the reading skills, the less positive is the self-image.

3) Students using the total communication strategy had significantly higher self-image scores than the oral-aural group, although both had scores within normal limits.

4) Self-image scores of hearing-impaired children placed in delivery service options 1, 2, or 3 (inclusion in the classroom with normal hearing peers), were significantly

lower if their English language skills were significantly lower than those of their normally hearing-peers.

5) Severe/profound hearing-impaired children with good English language skills tend to have a more positive self-image than mild to moderate hearing-impaired children with good English language skills. Similarly, among students with poor English language skills, if English language skills are poor then the children's self-image is poorer if they are hard-of-hearing than if they are severely or profoundly deaf.

6) Self-image is significantly poorer in children receiving service delivery 4 (special services one to two hours per day) than in children either in more fully mainstreamed or in more intensive delivery service options.

Discussion

Our results suggest suggest that hearing-impaired students' self-image is related to the ability to communicate with peers. Placing a student into a delivery service that can facilitate age appropriate learning skills may help guard against the development of a low self-image by providing the child with special guidance in areas where their social-emotional or academic skills may be lagging. Self-image and English language skills are significantly related in delivery services 1, 2, and 3 (English language skills are within two years of their chronological age peers). This relationship is not as strong in the more intensive delivery services indicating that factors other than language skills may influence the self-image of deaf students (i.e., multiple handicapping conditions).

Placing students into mainstream classrooms when their English language skills are poor may pose a problem for them. Studies show that the "isolated child" is shut off from opportunities to learn socially acceptable skills and behaviors

(Farrugia & Austin, 1980) which can only be learned through interacting with peers and adults. Isolation may lead to lags in development in other areas of social and emotional development including self-image (Craig, 1965; Kodman, 1963). When a hearing-impaired child is placed into the mainstream classroom without the ability to communicate effectively, that child is often ignored by peers and thus prevented from gaining the necessary social experiences to develop a healthy self-image. However, when a student with low English language skills is placed into a classroom with other hearing-impaired students with similar communication levels, the student is more likely to interact on a comfortable level and avoid the isolation and lack of social acceptance that may result from an inability to communicate with peers and therefore, is able to develop a more positive self-image.

The debate over the best educational setting for hearing-impaired students has raged for years. Craig (1965) reported that deaf students in public schools displayed lower self-concepts than deaf students in residential schools. Reich, Hambleton, and Houldin (1977) indicated that while integration may be beneficial to academic and language development, it may lead to increased personal and social problems. The present study lends further credibility to these claims. This study shows that unless English language skills are good, placing a deaf child into a mainstream setting, may have a negative impact on self-image scores.

Our original hypothesis stated that placement of hearing-impaired students into the least restrictive educational environment, one where hearing-impaired students learn commensurately with their hearing peers, would lead to optimal development of a healthy self-image and normal academic achievement. However, a simple causal relationship was not supported by our data. An appropriate education for a hearing-impaired child must be based on the student's individual needs rather than assuming that the "least restrictive" environment, which has

been interpreted to mean placement into the regular classroom, is the optimal setting for all hearing-impaired students. Some deaf students with good communication skills can receive an appropriate education in the mainstream, but the findings of this study show that this is only one way to educate the deaf. It may not be appropriate for children who have low English language skills to be placed into the "least restrictive" or mainstream classroom; rather, such children may need a more "restrictive" educational setting where they can communicate at the same level as their hearing-impaired peers and receive special attention from trained professionals to gain the necessary language skills. Our data suggest that, without these language skills and the ability to express ideas, children who are placed into the mainstream are at risk for developing a low self-image.

The results show that students with severe to profound hearing losses who have high English language skills have significantly higher self-image scores than hard-of-hearing students with good English language skills. Although both groups have self-image scores that are within normal limits, this finding again suggests that educators need to pay attention to and focus on the self-image of hearing-impaired children even when they appear to be successful academically.

An interesting finding in this study is the significantly lower self-image scores of the students placed into delivery service 4, where the students are taken out of the mainstream classroom one to two hours a day for extra help from a trained professional. Delivery service 4 consists of students with many varied academic and social-emotional needs who seem to be randomly placed into this delivery service. These students display a wide range of characteristics from low to high English language skills, reading skills, and modes of communication. This indicates that a standard set of criteria for placement of students into this delivery service may be lacking or applied inconsistently. Perhaps these students are being placed into delivery service 4 because they do not seem to fit into any of the other service

options. The self-image scores of some of the students may be suffering because they are not receiving sufficient attention and extra help from trained professionals. There are three options for delivery service 4: 1) Delivery service 4 should be abolished altogether as a service option because it fails to meet the needs of the students placed into it, 2) teachers and trained professionals in the state of Colorado need to be more discriminating in placing these students into this service, and/or 3) the services provided by delivery service 4 need to be improved to help the students achieve academic and social-emotional success.

Proper placement of hearing-impaired students into the best delivery service for them is crucial to their healthy development. Many variables are related to the self-image of deaf students and many considerations must be taken into account when deciding on the appropriate placement of a student into an educational setting that will facilitate age appropriate learning and healthy social-emotional development. Clearly, there is no simple relationship between self-image and any one particular variable. However, the hearing-impaired child's self-image is apt to be affected by peer relations which is likely to be influenced by the child's English language skills. If the hearing-impaired child's academic skills, especially English language skills, are within normal limits, the child should be able to interact with peers to avoid feelings of isolation at a critical period for the development of a healthy self-image. Future research should continue to determine specific criteria for placement of students into different service options to ensure that students are getting the best education. The existing service options should be constantly revised and improved to help all hearing-impaired students reach their individual academic and social-emotional potential.

Interpretation of Public Law 94-142 and "least restrictive placement," as full inclusion in the public school classroom regardless of the characteristics of the child, may be inhibiting the development of a positive self-image in some hearing-

impaired students. In the state of Colorado, a number of students are poorly serviced, and might benefit socially and emotionally by being placed into a more intense service delivery option. Assessment tools such as the Colorado IPP and the Meadow-Kendall Individual Assessment Inventory may help monitor variables related to the growth of deaf children, so that these students may be provided with the educational options that will promote their normal academic and social-emotional growth.

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Footnotes

[1] The terms "hearing-impaired" and "deaf" are used interchangeably throughout this report.

[2] A communication system is the mode of communication that a hearing-impaired person uses such as speech (oral), listening, speech-reading only, sign language only, or sign language used in combination with speech (total communication).

[3] Special characteristics include any second handicapping condition, learning disability, or health condition that interferes with the education process, and/or a spoken language other than English being the first language of the student.

[4] See Yoshinaga-Itano & Ruberry, 1992 for clarification of criteria for each rating (1 to 6).

[5] See Meadow, 1983 for data on relaibility and validity of the Meadow-Kendall Social-Emotional Assessment Inventory.

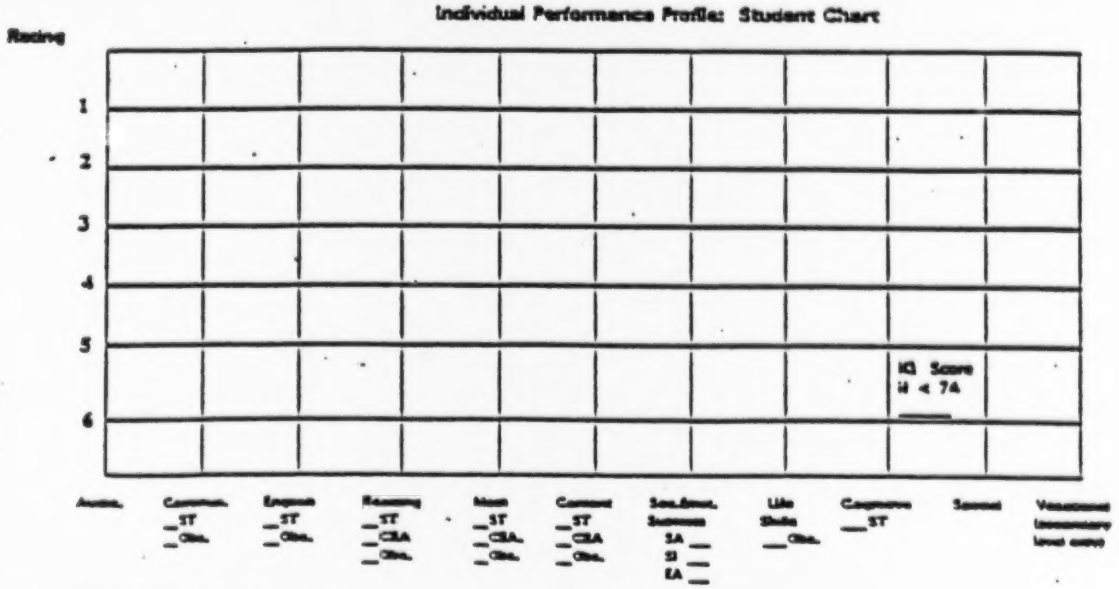
Table 2

Student Profile Chart

Student Name _____

Directions: Read the student descriptions of the Individual Performance Profile. Plot each student's rating, ages 6 and above, on the chart below by putting a large dot at the appropriate spot.

Individual Performance Profile: Student Chart



ST = Standardized Test Score
Obs. = Observation
CBA = Curriculum Based Assessment

Level of Stanford Given: Math _____
Reading _____
Content _____
Year Test Published _____

Names of Other Tests Administered: _____

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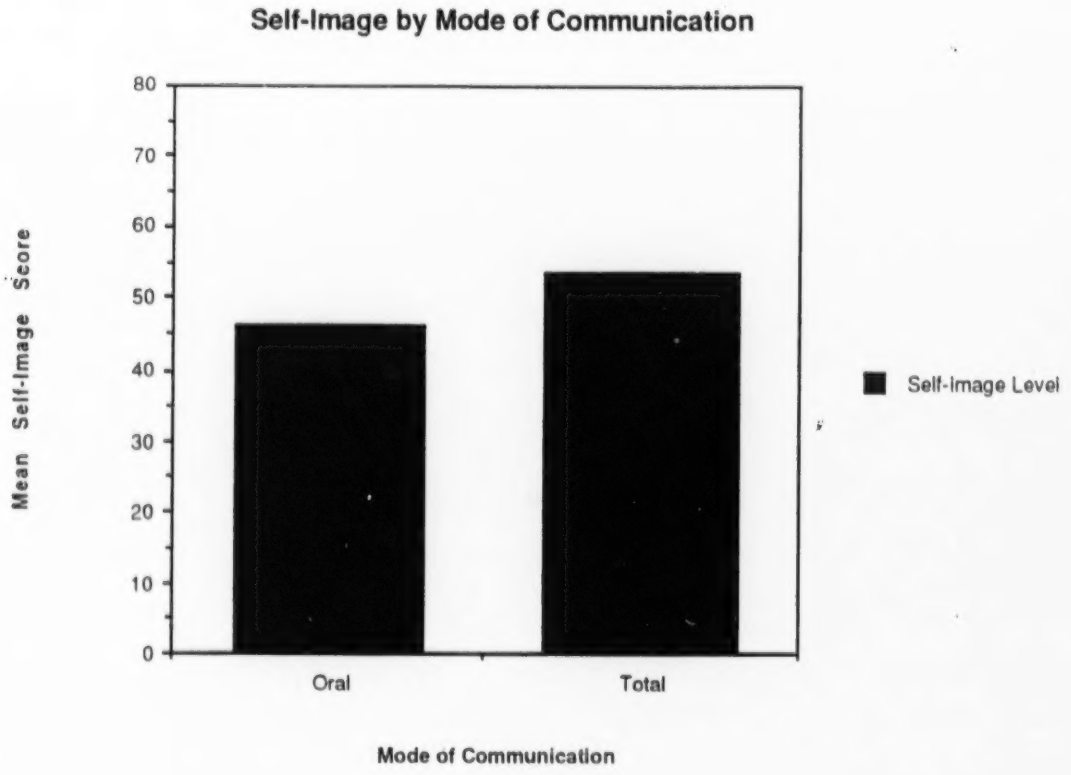

Total Sample = 1072

Missing Cases = 776 or 72.4%

Number of Cases = 296

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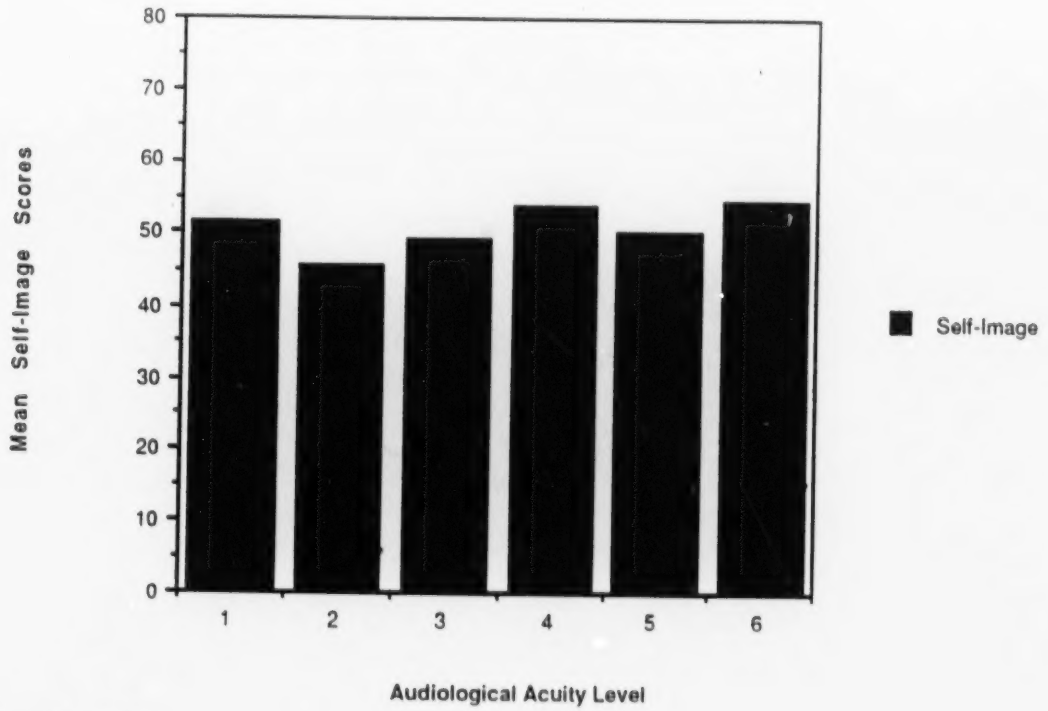
Self-Image by Audiological Acuity Levels



Total Sample = 1072

Missing Cases = 260 or 24.3%

Number of Cases = 812

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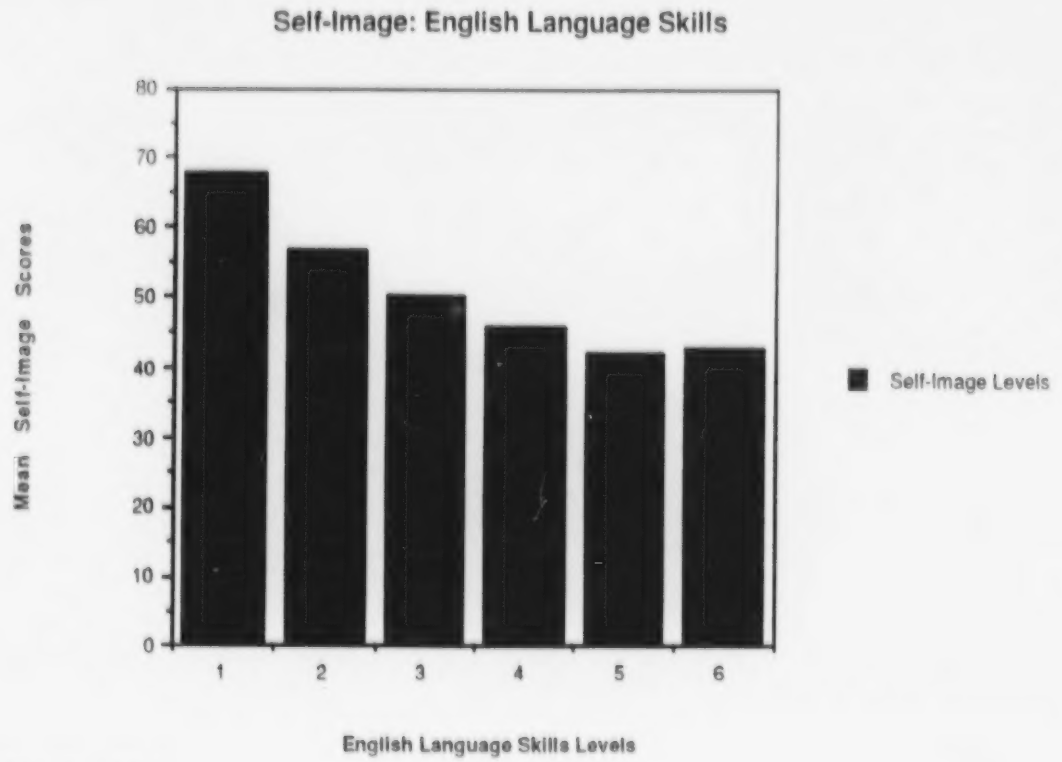
Total Sample= 1072

Missing Cases = 254 or 23.7%

Number of Cases = 818

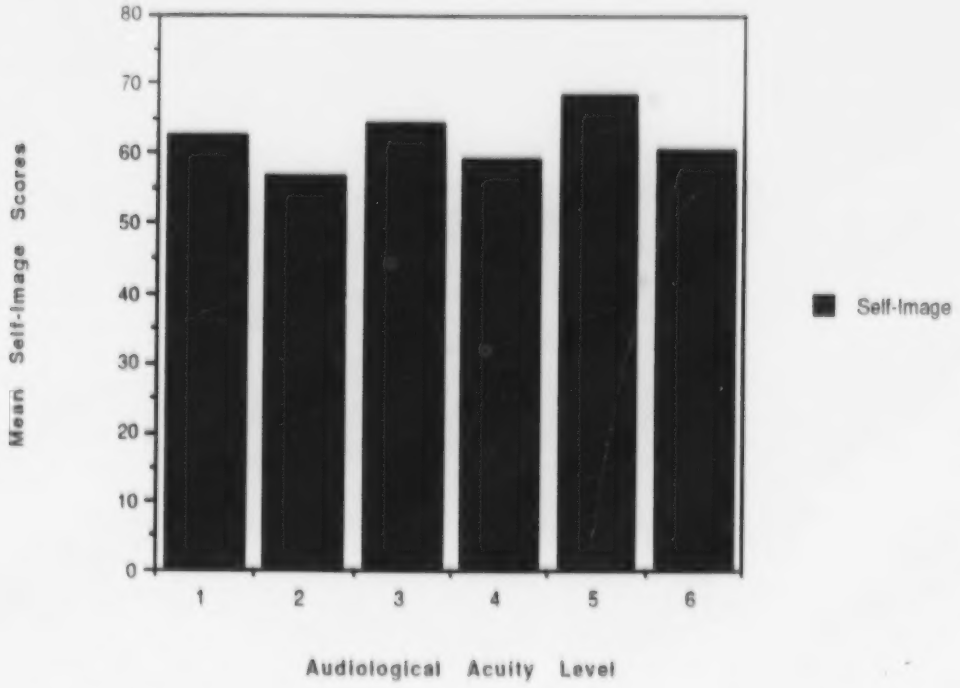


Total Sample = 1072

Missing Cases = 257 or 24%

Number of Cases = 815

Self-Image by Audiological Acuity: (English Language Skills=1,2,3)

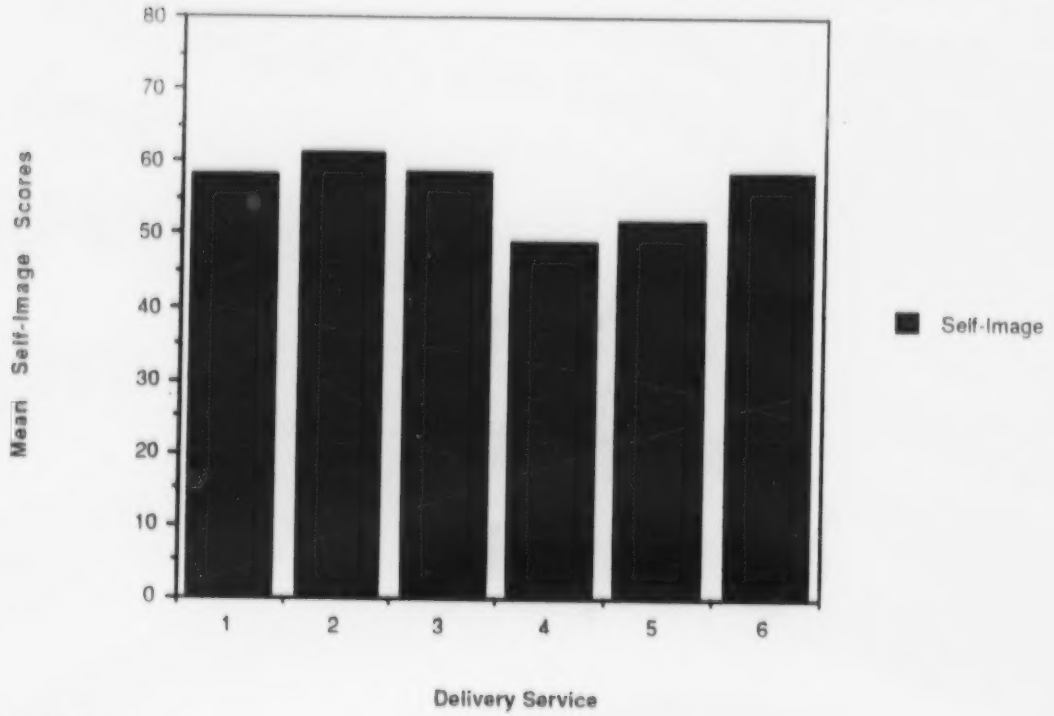


Total Sample = 609

Missing Cases = 125 or 20.5%

Number of Cases = 484

Self-Image by Delivery Service: (English Language Skills=1,2,3)

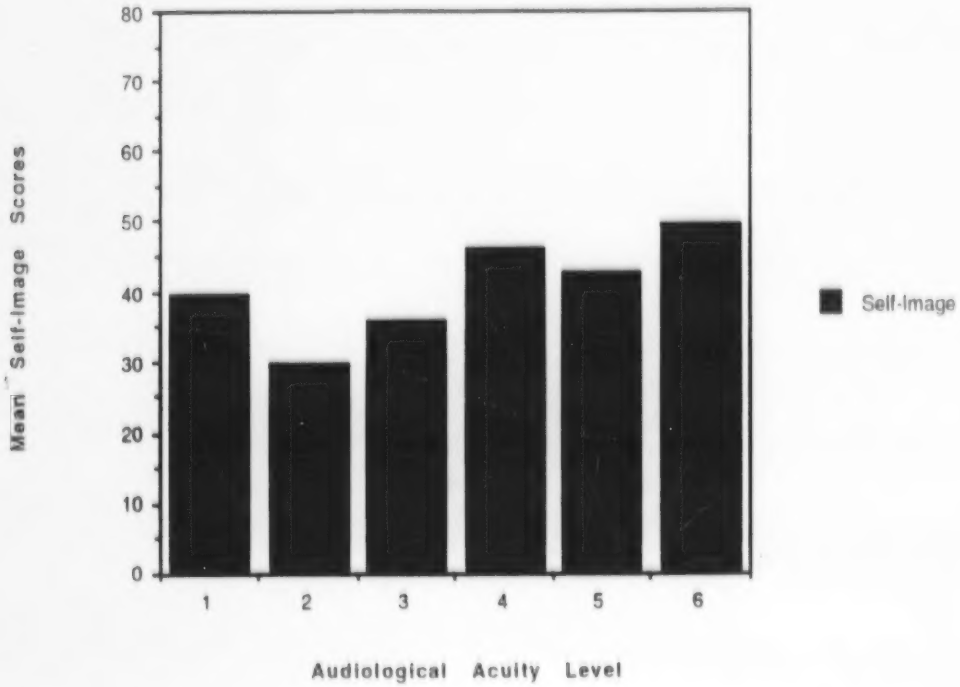


Total Sample = 609

Missing Cases = 115 or 18.9%

Number of Cases = 494

Self-Image by Audiological Acuity: (English Language Skills=4,5,6)



Total Sample = 392

Missing Cases = 75 or 19.1%

Number of Cases = 317

Table 2. Delivery Sevice Options for the Hearing-Impaired

Delivery Service 1 (Indirect Service):	**Monitoring (No IEP); Students are taught within the mainstream classroom with hearing-peers.**
Delivery Service 2 (Indirect Service):	**Consultation (IEP); Students are taught within the mainstream classroom.**
Delivery Service 3 (Direct Service):	**1 to 4 hrs. a week, combined number of hours from a trained teacher of the hearing-impaired, educational audiologist, speech-language specialist, and/or LD teacher; the student is still in mainstreamed classes.**
Delivery Service 4 (Direct Service):	**1 to 2 hours daily from a combination of the above professionals, excluding the LD teacher; student is mainstreamed for the majority of classes.**
Delivery Service 5 (Direct Service):	**3 or more hrs. daily from special education professionals in hearing services. However, the student is still mainstreamed for limited number of classes.**
Delivery Service 6 (Direct Service):	**All academic classes taken from special education professionals in hearing services. Students are in a residential school where they learn with other hearing-impaired students.**
Delivery Service 7 (Other):	**This delivery service is for hearing-impaired students with other multipy handicapping conditions.**